as the object, and, second, because of the wrong and foolish method of conversation employed — not necessarily by the child's parents — when talking to him. Such examples as "Baby kiss mamma," "Does Freddie love his auntie?" "Is little Mary cold?" etc., can hardly lead to an early conception of correct verbal expression. HOWARD LILIENTHAL, M.D.

New York, 43 East 29th Street, March 6.

Solidungulate Pigs.

THE "mule footed hogs" inquired about by Mr. Jno H. Frick, in *Science* of Feb. 24, p. 107, are described and figured in my article entitled "On a Breed of Solid-Hoofed Pigs Apparently Established in Texas," Bull. U. S. Geol. and Geogr. Surv. Terr., Vol. IV., No. 1, Feb. 5, 1878. p. 295. ELLIOTT COUES.

Smithsonion Institution, Washington, D. C., March 1.

BOOK-REVIEWS.

Original Papers on Dynamo Machinery and Allied Subjects. By JOHN HOPKINSON. M.A., D.Sc., F.R.S. New York, W. J. Johnston Company.

THIS volume is a collection of the papers on electro-technical subjects which Dr. Hopkinson has published at various times during the last fourteen years.

It will be unnecessary to speak of the great value of these papers, for a number of them have passed into the text-books and form a part of the education of every technical student, and there is probably not an electrician in the country who has not found himself obliged to obtain the greater part of the remainder in some form or other. But a book of clippings from engineering journals is never so satisfactory as a bound volume, and the electrical profession will accord a warm welcome to this little book, the more so as it contains several papers which have hitherto been difficult to obtain. Of the eleven papers here collected, five are on electric lighting and dynamo-electric machinery, two on transformers and transformer tests, two on theory of alternating currents, one on an electrostatic effect in conductors carrying alternating currents, and one on electric light-houses. The first five contain the "epoch making" work on characteristic curves, and on efficiency tests of dynamos. (In passing, it may be noted that the paragraph on page 36, on the use of the characteristic to find the lowest speed at which a machine can be run and yet produce an arc, is given wrongly in Professor S. P. Thompson's "Dynamo-Electric Machinery." page 273.) But to technical readers the most interesting portion will be the papers on alternate currents and transformers, included in which is an account of the recent tests on the Westinghouse transformer, of importance as showing that the old accusation of poor all-day efficiency can no longer be made against the commercial transformer. These treat of the parallel and series running of alternators, the design of transformers, the effect of capacity in transformers, the power consumed in alternating current arcs, etc.

The advantage that this book has over the papers as originally printed is the fact that most of the errors and misprints have been corrected. A few yet remain, however. On page 155, 2μ should read 2π; *sine* $2\pi/T(t+\tau)$ should read *sin* $2\pi/T(t-\tau)$; the sign of the solution of the differential equation for H should be $-$ instead of $+$. On page 157, $e\gamma$ should read 2γ; through the whole of this part of the book H' is printed instead of $\dot{H}$. This would be objectionable if intentional, but it seems to be an accident, as on page 179 the dot is used instead of the stroke, but placed wrongly.

Electricity and Magnetism: Being a Series of Advanced Primers of Electricity. By EDWIN J. HOUSTON, A.M., Professor of Natural Philosophy and Physical Geography in the Central High School of Philadelphia. New York, W. J. Johnston Co.

FROM the preface we learn that this book is meant for the "general public" and the increased "number of those to whom a knowledge of the laws of electricity has become a necessity of every-day business life." While it is proverbially hard for a specialist to decide what the public want, it may be doubted if they will see much to choose between this and the scores of similar books which have been published. It is possible, however, that the name on the title-page may prove an attraction to many. On inspection the book is found to treat of the simpler theoretical principles, technical subjects, such as the dynamo, arc-lamp, etc., taking up about fifty lines out of the three hundred pages which comprise the book.

As in most books of the class, there are numerous inaccuracies; to mention a few: on page 23 a black surface is stated to be a worse radiator of light than a white one; whereas, of course, the reverse is the case; carbon is given as an exception to the rule that the conducting power of metals decreases with rise of temperature; the "conducting power of all alloys or mixtures of different metals" is stated to be "very much less than that of any one of the metals of which they are composed," in forgetfulness apparently of the fact that Matthiessen gives a long list of alloys whose conductivity is the mean of their constituents, etc.

The idea of giving references and extracts from books which should be read by those desiring a fuller knowledge of electricity than can be gained from the primers, can be considered a good one. It may, however, be questioned if the quotation from Professor Ayrton's book, "Practical Electricity," would give a reader the impression that it is a book on electrical laboratory work, and whether there is any necessity of quoting the author's "Electrical Dictionary" and "Physical Geography" so often among the selections from standard works, especially where, as on page 161, under "Extracts from Standard Works," the author quotes his dictionary as quoting Fleming, where the extract could, with no loss, have been made directly from the original. The chapter on Electrical Work is one of the best in the book, and the unscientific reader can hardly fail to understand the ideas treated of completely. R. A. F.

Contributions from the Botanical Laboratory of the University of Pennsylvania. Vol. I., No. 1.

Bulletin of the Scientific Laboratories of Denison University, Granville, Ohio. Vol. VII.

IN these days of enormous multiplication of books, magazines, journals, proceedings of societies, etc., there should always be reason for the establishment of a new serial. The avenues of publication are already so numerous that it is almost impossible to keep track of all. The agricultural experiment stations have vastly increased the amount of literature dealing with scientific results, and the comparatively new departure of universities, in issuing periodical publications, is one rather to be deprecated than encouraged. It would seem far better, for example, to do as Columbia College in New York, and Harvard University in Cambridge do, that is, to publish articles in established periodicals or scientific serials, rather than to originate new ones. Columbia College publishes the "Contributions from the Herbarium" in the Transactions of the New York Academy of Science, while Harvard University prints "Contributions from the Chemical Laboratory" in the Proceedings of the American Academy of Arts and Sciences.

These remarks are induced partly by the recent appearance of No. 1 of Vol I. of "Contributions from the Botanical Laboratory of the University of Pennsylvania" and Vol. VII. of the "Bulletin of the Scientific Laboratory of Denison University." Both of these are creditable publications. The former contains some valuable papers upon Dioncœa and other subjects, and the latter is a catalogue of the flowering plants and ferns of Licking County, Ohio. With the Philadelphia Academy, the Franklin Institute, and the American Philosophical Society, all issuing serials in Philadelphia, the *raison d'etre* for a new serial there does not appear. The case of the Denison University is not quite parallel, but most probably there would be little difficulty in arranging for the publication of such papers in other places.

In the University of Pennsylvania contributions we have the following papers: "A Monstrous Specimen of *Rudbeckia hirta*," by J. T. Rothrock; "Contributions to the History of *Dionœa muscipula*," by J. M. McFarlane; "An Abnormal Development of the Inflorescence of Dioncœa," by John W. Harshberger; "Mangrove Tannin," by H. Trimble; "Observations on *Epigœa re-*